NWIFC News

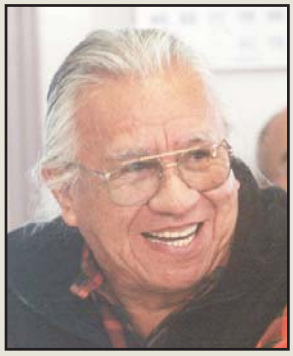
Northwest Indian Fisheries Commission

Spring 2005
www.nwifc.org

Inside:

Being Frank

What's Causing The Droughts?



Anyone who has listened to the tribes at all over the years should not be surprised that we're facing a severe drought this summer. We have been trying to tell people for years that this region is in the midst of a long-term drought. The water shortages and forest fires we'll experience will just be the latest in a long run of drought-related events.

Believe it or not, the problem started more than a century ago, when non-Indian society cut down virtually all the trees. As the giant cedars and other native evergreens fell victim to the greedy axe, the capacity of our watersheds to hold rain and snow – and release water slowly into the streams and rivers – went with them. That's what trees do naturally, soak up and slowly release water. Almost all of the trees to be found along the rivers now are second, third and fourth growth. New trees may one day be able to take the place of their ancestors, but they have to be allowed to stick around long enough, and not be replaced by condominiums and concrete. Mix the tree problem with the impacts of dams, the straightening of streams and rivers to accommodate agriculture and development, the massive impacts of the swelling population, and the water problem gets more complex.

Then add in the effects of climate change brought about primarily by man. As U.S. Sen. John McCain, new chairman of the Senate Committee on Indian Affairs, told delegates to the National Congress of American Indians recently, "Climate change is real, and man is causing it. Don't let anyone tell you different." The effect on us here in the Northwest? We still get rain. We're not getting much snow. Thus, water pours down the watersheds every year, causing winter and spring floods. Then it's gone.

Mix all this with the impacts of over-appropriation, water hoarding, and the failure of the legislature and Congress to prevent it, and what do you get? A witches' brew – thick with chemicals and other contaminants, but pretty thin on water. In short, you get drought, along with very serious questions about the quality of life in the Northwest.

You also get finger-pointing intended to divert attention from the real problem. Some say harvest is to blame for the downward trend in salmon populations. They make big news of the occasional successful harvest of fish, rare though it might be – especially if it's by a tribe. Not only are such reports highly discriminatory, they're misleading. Harvest has been cut back more than 80 percent for longer than a decade. The real problem is habitat destruction caused by over-development and over-appropriation of our limited water resources. And it's made worse by the failure of local, state and federal government to take a courageous stand on behalf of future generations.

There are solutions to the Northwest drought. Some of these will be topics for future columns. For now, please listen to me when I say that easing restrictions on industrial, agricultural and municipal use of our dwindling water supply is not one of these solutions.

NWIFC News

NWIFC News is published quarterly on behalf of the treaty Indian tribes in western Washington by the Northwest Indian Fisheries Commission, 6730 Martin Way E., Olympia, WA 98516. Free subscriptions are available. Articles in *NWIFC News* may be reprinted.

NWIFC Member Tribes

Hoh	360-374-6582
Jamestown S'Klallam	360-683-1109
Lower Elwha Klallam	360-452-8471
Lummi	360-384-2210
Makah	360-645-2205
Muckleshoot	253-939-3311
Nisqually	360-456-5221
Nooksack	360-592-5176
Port Gamble S'Klallam	360-297-2646
Puyallup	253-597-6200
Quileute	360-374-6163
Quinault	360-276-8211
Sauk-Suiattle	360-436-0132
Skokomish	360-426-4232
Squaxin Island	360-426-9781
Stillaguamish	360-652-7362
Suquamish	360-598-3311
Swinomish	360-466-3163
Tulalip	360-651-4000
Upper Skagit	360-856-5501

NWIFC Executive Director: Mike Grayum; NWIFC News Staff: Tony Meyer, Manager, Information and Education Services Division; Emmett O'Connell, South Sound Information Officer (IO); Darren Friedel, Strait/Hood Canal IO; Jeff Shaw, North Sound IO; Debbie Preston, Coastal IO; and Sheila McCloud, Editorial Assistant.

For more information: NWIFC Information Services in Olympia: (360) 438-1180; Mount Vernon: (360) 424-8226; Kingston: (360) 297-6546; or Forks: (360) 374-5501.

Visit the NWIFC Website at www.nwifc.org

On the cover: Daki Fisher, Hoh tribal member and habitat technician, prepares to plant a young Sitka spruce along the lower Hoh River south of Forks. The tribal restoration effort is being complicated by an insect that damages spruce trees. See Story on Page 7. *Photo: D. Preston*

Tribes Mark 150th Anniversary Of Treaty

Tribal leaders gathered with government officials, community members and historians on Jan. 22 to celebrate the 150th anniversary of the Point Elliott Treaty.

Arriving by canoe at Lighthouse Park in Mukilteo, tribal representatives said that the occasion was cause for celebrating common ground.

"This is a very important day for our tribal people," said Tulalip Tribes Chairman Stan Jones Sr. "For years, the Tulalip Tribes have developed relationships that improve the cooperation and collaboration on many projects."

Tribal canoes come ashore at a ceremony marking the 150th anniversary of the Point Elliott Treaty. *Photo: D. Friedel*

Signed in 1855, the treaty preserved the tribes' inherent rights to harvest fish, shellfish and wildlife as they always had. In exchange, the tribes gave up for settlement the land that now makes up western Washington.

Tribes party to the Point Elliott Treaty — Lummi, Muckleshoot, Nooksack, Sauk-Suiattle, Stillaguamish, Suquamish, Swinomish, Tulalip and Upper Skagit — surrendered millions of acres stretching from SeaTac in the south to the U.S.-Canada border in the north. In 1915, Charles Buchanan, the superintendent of the Tulalip Indian Agency, called the Point Elliott Treaty area "the very choicest and most valuable portion of the State of Washington."

'This treaty is a living document that links us with the past.'

– Shawn Yanity
Chair
Stillaguamish Tribe

The accord, like other agreements between the federal government and Indian tribes, was broken repeatedly for more than 100 years. Through a long struggle in the courts, though, tribes have succeeded in restoring treaty-based protections for natural resources shared in common with all Washington citizens.

"Treaties are there to safeguard everything we all hold dear," said Shawn Yanity, chair of the Stillaguamish Tribe. "For tribes, as sovereign nations and co-managers of Washington's resources, treaties are a tool to protect the environment as well as our rights."

The U.S. Constitution specifies that treaties can only be made between two fully sovereign entities, so the Point Elliott agreement implicitly recognizes the tribes' inherent status as independent nations. Moreover, section six of the U.S. Constitution specifies that treaties are to be considered "the supreme law of the land," on a par with the constitution itself.

"This treaty is a living document that links us with the past," said Yanity, "but it also helps preserve a better future for all of us."

The anniversary event featured the Tulalip canoe family and salmon ceremony group performing traditional songs, singing just as their ancestors had on the same spot a century and a half ago. – *J. Shaw*

Tribal members unload a canoe at the treaty anniversary celebration. *Photo: D. Friedel*

Point Elliott Treaty Fast Facts

- Signatories of the Point Elliott Treaty included Chief Sealth (Suquamish and Duwamish), for whom the City of Seattle is named. About 2,300 tribal members attended the 1855 treaty council.
- Washington Territorial Governor Isaac Stevens and a small party of government representatives attended on behalf of the U.S. government. Collectively, the five treaties signed by western Washington tribes are often called the "Stevens Treaties." To view the treaties, visit www.nwifc.org. Click on member tribes, then click on the treaty you wish to view.

High Risk Pays Off For Tribal Crab Fishermen

A full moon gives way to the pink skies of dawn as John Schumack's boat *Seeker* leaves LaPush for Dungeness crab grounds on the Pacific Ocean. Early morning serenity is short-lived, however. The Quillayute River bar is one of the most dangerous entrances on the Pacific coast and must be negotiated in the first minutes of the day.

Quileute tribal member Zach Cleveland, right, and Kevin Penn, left, haul in a crab pot on John Schumack's boat, *Seeker*. *Photos: D. Preston*

"If anything bad is going to happen to you, it's going to happen right here," said Zach Cleveland, a Quileute tribal member who helps crew Schumack's boat.

The 9-foot swell at LaPush this day is nearing the maximum height at which Schumack is willing to risk crossing. The boat rocks crazily from the waves that come not only straight on, but sideways as they bounce off James Island, a large sea stack at the mouth. The return home can be even trickier, requiring perfect timing to hit a lull in sets of incoming swells.

A Dungeness crab.

The chaotic bar has claimed many lives, including three U.S. Coast Guard members during a rescue in 25-foot sea in 1997. Seven fishermen from *The Gambler* perished in 1990. "You can't ever take the danger for granted," said Schumack as the boat settled into a more familiar rise and fall after clearing the bar. "I know it's going to be fine once we get out there, but the crossing conditions can mean you don't go even if the weather is good out at sea."

Tribal and non-tribal crab fishermen deal with these hazards on the Olympic coast in pursuit of one of the most lucrative fisheries available to them. The state commercial crab season nets more than 20 million pounds valued at nearly $1 billion, with the most of the catch and profit going to 311 non-tribal fishermen. This season, Quileute and Quinault Indian Nation (QIN) tribal fishermen landed more than 1.4 million and 2.7 million pounds respectively, record landings for both, yet only a small percentage of the overall harvest.

"The first couple of weeks of this season, it was just phenomenal," said skipper Schumack. "Everyone's pots were full and the weather cooperated for a bit." Last year's landings were also good, allowing fishermen to add new gear, and in some cases, a new boat. The improvement in gear improved fishing ability overall. "It shows that we can bring it in if we have the opportunity," said Schumack. Inconsistent crab abundance in the Neah Bay area makes the crab fishery less significant for the Makah Tribe. The Hoh Tribe plans to participate in the future.

"Our fleet hasn't really grown that much; it's still pretty much 14 or 15 boats, but several fishermen have upgraded their equipment and it shows in improved landings," said Joe Schumacker, fisheries operations section manager for QIN. "The fishermen had to do a lot of sorting early on because of inconsistent crab condition down here, but the work paid off with a great season." – *D.Preston*

Passages

Bruce Miller
Subiyay

Bruce Miller

Bruce Miller, a Skokomish tribal spiritual leader and cultural educator, died Feb. 5, 2005. He was 60.

Miller, also known by his Skokomish name Subiyay, was born April 23, 1944, the youngest of 15 children.

A promising actor and playwright in New York, Miller gave that up to return to the Skokomish Reservation where he worked to revive and preserve tribal culture. An expert at weaving baskets and cedar hats, Miller's work not only passed on tribal culture to children on the reservation, but also has been displayed in museums, such as the Henry Art Gallery at the University of Washington. In the early 1970s, he became the Skokomish Tribe's cultural and educational director.

The Washington State Office of Superintendent of Public Instruction named Miller a "Living Treasure" in 1999. Miller also received the Governor's Heritage Award in 1992, and a National Heritage Fellowship from the National Endowment for the Arts in 2004.

Miller served in the U.S. Army, spending two tours of combat duty in Vietnam. He was awarded the Army Medal of Commendation for his military service.

While being honored by the National Endowment for the Arts in 2004, Miller told the audience at the Library of Congress: "We have a term in our language called … (ha ku sadad). To use it is a form of wealth. It has nothing to do with monetary currency or material things. It's the wealth of the knowledge of our culture. It's something that cannot be bought. Something that many governments have tried to destroy within the various nations of the world. They burned libraries, tortured and killed artists. But still we survive and speak for those original ancestors of our cultures."

Tribe, Refuge Sign Historic Agreement

The Nisqually Indian Tribe and the Nisqually National Wildlife Refuge signed a cooperative agreement that will pave the way for conservation and recreation in the watershed. Under the agreement, the tribe and the refuge will cooperatively manage about 310 acres of tribally owned land on the east bank of the Nisqually River as part of the Nisqually National Wildlife Refuge.

Dorian Sanchez, left, Nisqually tribal chairman, congratulates Dave Allen, U.S. Fish and Wildlife Service regional director, on signing a new cooperative agreement between the tribe and federal government. *Photo: E. O'Connell*

"This agreement balances public access with protection of the Nisqually River estuary," said David Troutt, natural resources director for the Nisqually Tribe. "With the refuge and the tribe working together to manage the tribally owned land, it guarantees that the entire Nisqually River estuary will be protected as a whole."

"The refuge and the tribe will work together to ensure this land is always protected," said Jean Takekawa, manager of the Nisqually National Wildlife Refuge. Dorian Sanchez, Nisqually tribal chairman, and Dave Allen, U.S. Fish and Wildlife Service regional director, officially signed the agreement Feb. 23 at the Nisqually National Wildlife Refuge.

"Not only is this a significant event in the management of the Nisqually delta, but it is also a major advance in protecting the Nisqually River watershed," said Takekawa. "This is also a great partnership between the Nisqually Indian Tribe and the refuge." The cooperative agreement is the first formal arrangement between the tribe and refuge managers, who have a long-term working relationship.

The land under the agreement, a former cattle ranch, has been the site of an ongoing and aggressive estuary restoration effort by the tribe. To date, the Nisqually Tribe has restored almost 40 acres of estuary. An additional 100 acres will be opened next summer. "The Nisqually River estuary is the largest mostly undisturbed estuary in Puget Sound," said Troutt. "The most important thing we can do to restore salmon in the Nisqually River is to protect and restore this estuary. This agreement helps us do that.

"The tribe's goal when the property was purchased was to return it to its natural state," said Troutt. Estuaries are where salmon undergo a vital physiological change that allows them to move from the fresh water to salt water. In recent years, the tribe has discovered that migrating juvenile salmon from all over Puget Sound use the Nisqually estuary to feed and rear.

Increased public access will include a new trail along the east side of the Nisqually River. The process to approve and fund a bridge across Red Salmon Slough to connect the entire property through a loop trail is already under way. "Everyone will benefit from the stewardship outlined in this agreement," said Troutt. "Salmon will continue to return to the Nisqually River and the public will be welcome to visit this special place."

– E. O'Connell

Fish Fling

A Yelm area student winds up to throw a frozen chinook salmon into the Nisqually River. The chinook carcasses, from salmon that returned to one of the Nisqually Tribe's two hatcheries, will contribute important nutrients to the river's ecosystem. Organisms that feed on the carcasses, such as insects, will add to the abundance of food for young salmon. *Photo: E. O'Connell*

On The Dungeness River Floodplain

Houses Removed To Let River Find Path

In the 1800s, the lower reach of the Dungeness River flowed through a 100-acre floodplain before emptying into Dungeness Bay. The river was connected to a large estuary that provided essential spawning and rearing habitat for salmon.

Nowadays, the floodplain is the site of several homes and agricultural land. Dikes – built in the 1960s – on both sides of the river restrict the river's course, protecting development and eliminating critical salmon habitat. The west-bank dike, known as the Rivers End levee, is privately maintained and hasn't always worked, causing flooding problems for property owners and the environment.

To eliminate continual property damage and protect and restore the environment, the Jamestown S'Klallam Tribe and Clallam County are purchasing land along the Rivers End levee and in the floodplain from willing property owners and removing some of the houses. Known as the Rivers End Project, the goal is to allow the river to connect with the floodplain. The project also will improve habitat for fish and decrease flood hazards upstream.

Two houses in the area already have been demolished and their septic systems have been removed. Another house will be removed soon, and a fourth house will be moved to another location next spring.

A house at Rivers End was torn down Dec. 22 to eliminate continual property damage and protect and restore the environment. *Photo: D. Friedel*

"Year after year, flooding has been a major problem for many of the property owners at Rivers End," said Hansi Hals, restoration planner for the Jamestown S'Klallam Tribe. "One homeowner was flooded nine times in eight years. That's a problem for the property owner and the environment. Our hope is to eliminate those problems and improve salmon habitat by purchasing property in that floodplain and letting the river slow down and choose its path."

So far, seven landowners have sold nine parcels and an additional seven property owners are in negotiations. Property owners are given fair market value for their land and are offered relocation assistance. Also, the North Olympic Land Trust, which owns about 50 acres of pasture in the floodplain, is exploring restoration options.

'Year after year, flooding has been a major problem for many of the property owners at Rivers End.'

– Hansi Hals
Restoration Planner
Jamestown S'Klallam Tribe

After property has been purchased, structures on each parcel will be removed. Septic systems, which often fail during floods and release pollutants into Dungeness Bay, also will be cleaned and removed. In recent years, more and more areas within the bay are being closed to shellfishing due to high levels of fecal coliform bacteria. "Removing the septic systems won't solve the pollution problem in Dungeness Bay, but it will be one step toward helping remedy the situation," Hals said.

Aside from improving water quality, the project will re-establish important salmon spawning and rearing habitat at the mouth of the river. The Dungeness supports chinook, pink, chum, and coho salmon and steelhead, cutthroat and bull trout. The chinook, summer chum and bull trout populations are all listed as "threatened" under the federal Endangered Species Act.

Allowing the lower reach of the Dungeness River to spread out over the floodplain also will lessen the likelihood of salmon redds – or gravel nests – being scoured during heavy rains. Dikes and reinforced banks constrict the river and increase the velocity of the river's water flow. That wipes out salmon spawning beds, and eliminates off-channel rearing habitat important to the fish. As part of the project, the tribe also plans to plant native vegetation in the floodplain.

Along with the tribe and the county, the Washington Department of Fish and Wildlife, the U.S. Fish and Wildlife Service and the U.S. Forest Service are involved in the Rivers End Project.

"We are trying to restore river processes in the lowest reach of the Dungeness River and in this critical estuarine area," said Hals. "Restoring this area will go along way toward our goal of recovering and preserving these fragile salmon stocks."

– D. Friedel

Spruce-Tip Weevil Complicates Hoh Restoration Effort

A spruce-tip weevil. *Photo: Courtesy U.S. Forest Service*

Plant a tree and it will grow.

It's not that simple, though, when the tree is a Sitka spruce planted to reforest Olympic coast river corridors.

Populations of spruce-tip weevil, an insect that causes spruce to grow uncharacteristically bushy and low, exploded in spruce forests planted in the mid-1980s. Infestation was so prevalent that many private timberland owners stopped replanting spruce – the signature species of temperate rainforests, and a key component of salmon habitat.

When the Hoh Tribe wanted to plant spruce in the lower Hoh River corridor as part of their salmon restoration efforts, they consulted Lyle Almond, research silviculturist for the state Department of Natural Resources, to improve their chances of success. Spruce helps promote river channel stability along riverbanks, reducing sediment that can kill salmon eggs. When floods drop spruce into the river, they contribute to logjams that help provide important habitat for fish. A weevil-infested spruce will never grow to a size that will contribute adequately to salmon habitat.

"Almond found that the weevil infestation in spruce was considerably lower if the trees grew within dense stands of alder," said Steve Allison, habitat biologist for the Hoh Tribe. "Alder stands keep it too cool for weevil eggs to hatch consistently."

Almond believes the increase in weevils is solely due to the plantation planting of spruce in clear-cuts. "The open area created an ideal environment for weevils to proliferate," said Almond. "The eggs need temperatures of 75 degrees or higher to hatch. Without a diversity of other tree species to create shade and lower temperatures, conditions were perfect for weevil production."

Historically, spruce thrived, despite the presence of a native population of spruce-tip weevil. Today, weevils are able to genetically mutate faster than the host spruce's ability to create natural defenses. Weevils migrating from the dense stands of spruce have infected native spruce trees, including older trees and those growing close to the ocean – trees previously immune to the weevil. The problem is being made worse by a warming planet that is aiding the northward spread of the pest to areas that were historically too cold.

Almond's solution, growing spruce within alder stands, was an observation borne out by research. "It gets back to seeking answers in the natural world. Alder and spruce are naturally found together," said Almond. "They have similar needs to grow well like the well-drained soil found in dynamic river corridors. They also complement one another well," said Almond.

Hoh tribal habitat technicians walk into an alder canopy to plant Sitka spruce trees. The alder helps reduce the chances of spruce-tip weevil infestation in the spruce. *Photo: D. Preston*

Alder grows quickly because it is shade intolerant, but spruce will tolerate shade until an alder has reached most of its adult height, from 15 to 20 years old. During the alder's rapid growth, the spruce is using the shade to fight off weevil infestation. The alder then stops its rapid growth, relinquishing nutrients and the spruce begins its period of rapid growth.

Equally important to successful spruce growth within the alder stands, however, is the density and age of the alder stands. Young spruce are susceptible to whiplash damage from wind-whipped alders in winter.

"We're aiming for Almond's recommended shade percentage of 88 percent per quarter acre, which seems to be optimum for preventing weevil infestation and reducing damage from alder whiplash," said Allison.

The tribe is planting young spruce along streams and in former river channels in the lower Hoh watershed where dense growth of alder already exists. Mature spruce not only benefits fish, but bald eagles, spotted owls and marbled murrelets who prefer mature spruce for nesting.

Tribal biologists and technicians planted more than 15 acres of private and state lands with nearly 2,000 spruce trees in 2004. They will plant nearly 200 acres and more than 16,000 trees this year. Part of their restoration work will include replanting the base of large debris slides along the river, where trees such as silver and grand fir can thrive. The vegetation will help stabilize the debris, reducing the amount of sediment that is washed into the river.

Federal Pacific Coastal Salmon Recovery and Bureau of Indian Affairs watershed restoration grants paid for the work along with donations of some trees from the U.S. Forest Service and Green Crow timber company. – *D. Preston*

Tribes Foster Plants For Traditional Uses

Bear grass has been used in tribal basket weaving on the Olympic coast of Washington for centuries. Opportunities to gather bear grass, however, are dwindling on the Olympic Peninsula. Traditional bear grass areas have been converted to commercial forest, eliminating the open space habitat that bear grass prefers. Improper harvest techniques by a rapidly increasing forest products industry are also taking a toll – resulting in no re-growth of bear grass. Finally, a key ingredient in the plant's life cycle is missing: fire.

Charlotte Kalama, QIN elder and renowned basket maker, has experienced difficulty getting bear grass for a number of years. "My husband used to get it for me, but it's hard to find now," said Kalama, 81, who lives in Queets. When she does get bear grass, it's usually the result of QIN law enforcement seizing illegally harvested plants from forest product workers, a growing problem on the QIN reservation. Kalama was one of several elders who alerted James to the growing shortage of the spiky-bladed member of the lily family.

> 'My husband used to get it for me, but it's hard to find now.'
>
> *– Charlotte Kalama, 81*
> *Quinault Indian Nation Elder*
> *And Renowned Basket Maker*

"We believe that tribes kept these bear grass areas flourishing by burning them," said Daniela Shebitz, a researcher from the University of Washington who is working with Justine James, Quinault Indian Nation (QIN) Timber, Fish and Wildlife cultural specialist, to preserve and enhance bear grass habitat. Shebitz's goal is to show the importance of reintroducing traditional land management practices to restore culturally important resources.

Bear grass is usually found at elevations above 4,000 feet, however a lowland species is only found in forests and bogs on the southwest Olympic Peninsula and parts of South Puget Sound. "Some of my professors were floored when I sent them a picture of bear grass next to skunk cabbage and camas, typical lowland bog and wetland plants," said Shebitz.

Shebitz, James, and a crew of QIN firefighters created several different growing environments in the bogs on QIN lands to test the effect of fire and other plant competition on bear grass. Several control plots with no alterations are also being monitored.

A basket containing bear grass, created by Charlotte Kalama, Quinault Indian Nation, awaits completion. *Photo: D. Preston*

Justine James, Timber, Fish and Wildlife cultural specialist for the Quinault Indian Nation, looks over a bear grass test plot. *Photo: D. Preston*

Shebitz and James were aided in their efforts by an Olympic National Forest (ONF) vegetation map created as part of spotted owl habitat assessments to create the project. "The vegetation map was very helpful, in combination with local knowledge, in setting up this project," said Shebitz.

James believes QIN members historically used the area as part of a travel route from the coast over the Olympic Mountains. "They might have burned it as part of their travels, maybe on their return." Along with learning the optimum conditions for this particular bear grass to grow, James will gather soil samples to determine what areas were burned historically.

"The elders have also told us that bear grass is more pliable when it grows back after it is burned," said Shebitz, who has conducted a variety of traditional plant research. "I think one of the best things about this project is the wedding of traditional knowledge and science. Too frequently, that isn't the case."

QIN elders were suspicious about the project in the beginning, said James. "In the past, so much information was taken from them, often for the profit of others, and they didn't get anything back. This time, they will get something back – a way to perpetuate bear grass." *– D. Preston*

Cynthia Iyall, Nisqually Tribe, holds camas bulbs that have just begun to sprout. The bulbs will be planted in a restored prairie later this year. *Photo: E. O'Connell*

The Nisqually Tribe is reviving camas, a simple root that was once a staple in the diet of the Nisqually Tribe and has today practically disappeared from prairies around Puget Sound. "Many of the tribe's major villages were located between fishing sites on one side and camas prairies on the other," said Cynthia Iyall of the tribe's planning department. "Camas and salmon were the two foods that sustained the Nisqually Tribe for centuries."

This spring and summer tribal members will clear plants and debris from a five-acre reservation site, preparing to plant 600 camas bulbs next fall. "A small test patch we planted last winter is doing fine," said Iyall. "So we're going to go ahead with a major planting.

> 'There are only a few places left in the Nisqually River watershed where we can still find camas.'
>
> *– Cynthia Iyall*
> *Economic Development Specialist*
> *Nisqually Tribe*

Camas was incredibly important because it was the main food for much of the year, Iyall said. "Because it was a food that was harvested mostly by women, it also provided an important social function for Nisqually women.

A field of camas in bloom. *Photo: Courtesy Idaho Department Of Transportation*

"This isn't the only place we would like to see camas restored to grow naturally," said Iyall. "Restoring camas is a long-term goal of the tribe. We know camas won't come back in a couple years; it will take a lot of hard work." The initial 10-year restoration project is being funded by a Natural Resources Conservation Service grant.

Camas not only represents a lost food source for the tribe, it represents a nearly lost ecosystem. "Camas grows in open prairies, which are almost nonexistent today," said Iyall. The flat and open nature of prairies made them attractive to farming and urban development.

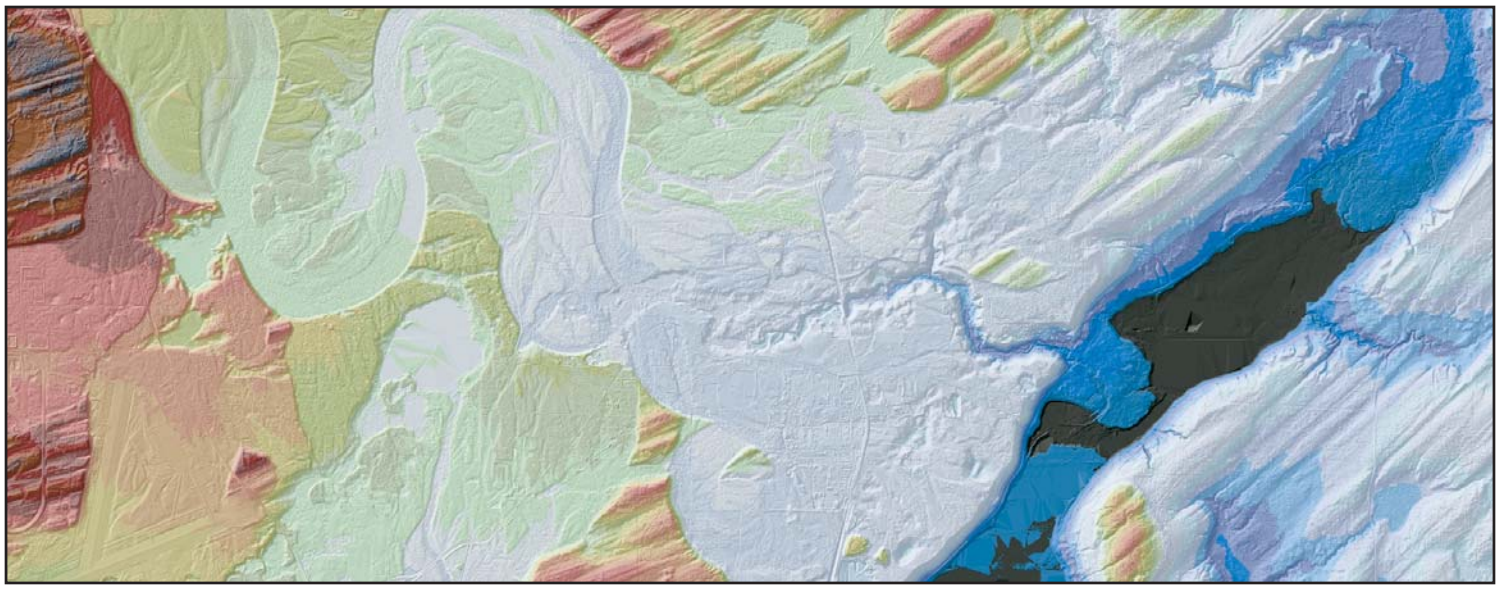
Also, since the arrival of the first non-Indian settlements, the Nisqually tradition of burning the prairie to keep it open has stopped. Douglas fir and non-native species like Scots broom have taken over many of the prairies once dominated by camas.

"There are only a few places left in the Nisqually River watershed where we can still find camas," said Iyall. Most of these places are on Fort Lewis, were the Army has preserved much of the last intact prairie in Puget Sound for training purposes. While tribal members regularly are allowed onto Fort Lewis to harvest camas, having a closer place for the tribe would be better, said Iyall.

Eventually, Iyall sees the restored camas patch as a place for Nisqually families to gather. "I hope that someday tribal members can go down there, camp out, and have access to a regular supply of camas," she said. "Camas was once a central part of our lives and our culture, and hopefully this five-acre patch will help bring that back." *– E. O'Connell*

Camas Fast Facts

- Scientific name: *Camassia quamash*
- Many geographic sites are named for camas, such as Lacamas Creek (or *La Camas* in French), a tributary of the Nisqually River, and the city of Camas, Wash.
- The stem of the camas bulb reaches one to two feet.
- When it flowers in early spring, camas produces large fields of blue that, from a distance, resemble pools of water. Up close, the blue camas flower looks like a dahlia.
- Camas ranges from British Columbia to Alberta in Canada, and south to Colorado and California. Camas flowers from late April to mid-July.



The Squaxin Island Tribe is using an airborne laser range finder to map local watersheds. *Photo: Courtesy Squaxin Island Tribe*

Improved Mapping Aids Management

To better protect salmon, the Squaxin Island Tribe is using an airborne laser range finder that scans topography down to the inch to get a deep understanding of local watersheds.

"In the past how we've seen watersheds was by using old style topographic maps," said John Konovsky, water quality manager for the Squaxin Island Tribe. But older topographic maps are subject to human error, as opposed to the Light Distance and Ranging (LIDAR) system that the tribe is using. "It's not that uncommon to see streams appearing to flow uphill on an old style topographic map," said Konovsky.

"With LIDAR, there has never been a more accurate way to find out how high a hill is," said Konovsky. "By having more accurate maps of watersheds, we can do a better job determining the functions of streams and how to protect them for salmon."

The Squaxin Island Tribe's traditional fishing area in the deep southern Puget Sound is made up of small creeks and streams. "These streams are not easy places to understand," said Konovsky. "Each one of them is different, and understanding them is important to their protection."

LIDAR also helps determine the composition of forests in each watershed. "It gives you different views of the landscape, one at the tops of the trees and another one as if there were no trees," said Konovsky. Younger forests let more water hit the ground. Because water has to go somewhere, it often ends up in a stream quicker than if it landed in an old growth forest. "The flooding that is common in younger forests can hurt salmon by scouring out their eggs, for example," he said.

In addition to looking for clues from the air, the tribe is using a rare technique, rapid push drilling, to find out what is going on below the surface. Instead of boring into the ground, which disturbs the soil before it can be examined, the technique quickly pushes a tube into the soil and is able to pull up an intact core. "This kind of sampling gives us a better look at the subsurface structures and how water moves underground," said Nadine Romero, the tribe's hydrologist. "It shows detail down to the eyelash."

Elk Crossing

Elk cross a stream in the Quillayute River system during the Quileute Tribe's spring helicopter survey of their numbers. Thanks in part to several mild winters, calf survival rates have increased, according to tribal biologists.

Photo: D. Preston

Bacteria Levels Sharply Lower In Matriotti Creek

A polluted tributary of the Dungeness River is cleaner today thanks to tribal, state, and local efforts.

Jessica Humphries, Jamestown S'Klallam Tribe natural resources technician, checks water flow and temperature along a stretch of Matriotti Creek. *Photo: D. Friedel*

Bacteria levels in Matriotti Creek, which feeds into the lower portion of the Dungeness River, have decreased significantly since 2000, according to a Washington Department of Ecology report. Several monitoring sites along Matriotti Creek show that bacteria levels have significantly improved, although the creek still does not meet water quality goals.

"That's a good sign for fish, shellfish, wildlife and people that live in the Sequim area," said Hansi Hals, restoration planner for the Jamestown S'Klallam Tribe. The tribe helped monitor the creek, compiled data for the state's report and worked with others to implement projects to help prevent pollution. "This shows that all the hard work by local groups and landowners is starting to pay off, and that if we continue this effort we can restore local creeks and rivers, and improve water quality in the area."

Fecal coliform is monitored monthly to determine bacteria levels in the Dungeness River, and its tributaries. The bacteria comes from the feces of warm-blooded animals, such as livestock, wildlife and humans. Failing septic systems, poorly managed farms, pet waste and wildlife all play a role in the fecal coliform problem. In recent years, bacteria levels have been high, and as a result portions of Dungeness Bay have been closed to recreational and commercial shellfish harvesting. Because oysters and clams filter food from water, fecal coliform sometimes ends up in the tissue of shellfish, which could make people sick if the shellfish is eaten. Over time, however, shellfish will flush the pollutants from their systems, as long as no other pollutants enter the water.

Dungeness Bay shellfish beds currently remain closed and bacteria levels are high in many of the other Dungeness watershed streams.

Workshops to teach farmers and homeowners how to keep manure and pet waste away from streams and how to properly maintain their septic systems, along with improvements to irrigation ditches, have contributed to the decrease in bacteria levels in Matriotti Creek. The maturing of restored riparian – streamside – vegetation along more than three miles of Matriotti Creek also has helped improve water quality.

"People have made a difference and that's great, but serious improvements still need to be made," Hals said. "We need to continue to implement best management practices throughout this watershed, and keep them in place." – *D.Friedel*

Makah Whaling Appeal Denied; Waiver Sought

The Makah Tribe, seeking to continue exercising its treaty-reserved right to subsistence whaling, recently applied for a waiver to the Marine Mammal Protection Act (MMPA) that would allow the resumption of a tribal harvest up to five gray whales per year as approved by the International Whaling Commission (IWC).

The tribe submitted the application to the National Oceanic and Atmospheric Administration (NOAA) in response to a 9th U.S. Circuit Court of Appeals ruling that halted whaling and to provide a legal framework that will allow for long-term exercise of treaty whaling rights consistent with the conservation needs of the gray whale.

The population of gray whales in the eastern north Pacific Ocean is estimated at 17,000, at or above historic levels. A harvest of up to five gray whales per year will not have any impact on the overall population of gray whales.

The tribe's whale hunt has been suspended since 2000 when the appeals court ordered a halt to the hunt because NOAA had failed to comply with the National Environmental Policy Act before seeking a quota from the IWC. In 2003, the court issued another decision holding that the tribe must obtain a waiver of the MMPA take moratorium before it may exercise its treaty whaling rights. Most recently, the court ruled against an appeal to reconsider that opinion. The court's decision emphasized that it was not holding that the tribe's treaty rights had been abrogated.

"Our tribe is seeking a ceremonial and subsistence whale hunt to keep our whaling culture alive," said Ben Johnson Jr., chairman of the Makah Tribal Council. "Our application responds to concerns that have been raised by the court. We have a treaty right to engage in whaling and we will continue to pursue our rights."

The Makah Tribe has at least a 1,500-year-old whaling tradition. – *D. Preston*

SRSC Project Aids Habitat For Fish, People

The Skagit River System Cooperative's (SRSC) first major restoration project in Island County will create acres of habitat for endangered fish species and improve the quality of life for homeowners surrounding the project area.

"Through years of research, we have seen the important role estuaries play in recovering wild salmon," said Lorraine Loomis, fisheries manager for the Swinomish Tribe. "This project is one example of how we are following through on that research, doing what we need to do to bring back healthy salmon runs."

At Arrowhead Lagoon on the northern side of Camano Island, a blend of Puget Sound brine and fresh water from the Skagit and Stillaguamish rivers creates badly needed habitat for fish and shellfish. Included among the species the surrounding area sustains are the chinook salmon and bull trout, listed as "threatened" under the federal Endangered Species Act. SRSC, the natural resources arm of the Swinomish and Sauk-Suiattle tribes, is working with property owners on a plan to restore the lagoon's proper functions for fish.

"This type of habitat is fundamental for fish. Chinook salmon particularly use the lagoon for feeding, rearing, and refuge," said Darla Boyer, a restoration ecologist with SRSC who serves as the project manager. "Right now, about 80 percent of Arrowhead Lagoon is unavailable for fish. We're going to fix that."

The project will be the culmination of years of work. The SRSC research team has been gathering information by sampling fish in and around Arrowhead Lagoon since 2001.

Findings from this research indicate that wild juvenile chinook use pocket estuaries like Arrowhead Lagoon in migrating out to sea from the streams where they were born. This is a crucially important life stage for young salmon fry, and SRSC data shows that the growing fish prefer this type of habitat over nearby nearshore areas.

The tribes are working with property owners in the nearby Eagle Tree Estates complex, several of whom have already provided valuable information. Some were concerned about a small, failing culvert that blocks natural sediment flow. Plus, because the culvert is decaying, it will eventually collapse, destroying a trail that residents can use to access the coastline.

Research ecologist Darla Boyer, Skagit River System Cooperative, stands near a problem culvert at the Arrowhead Lagoon site. *Photo: J. Shaw*

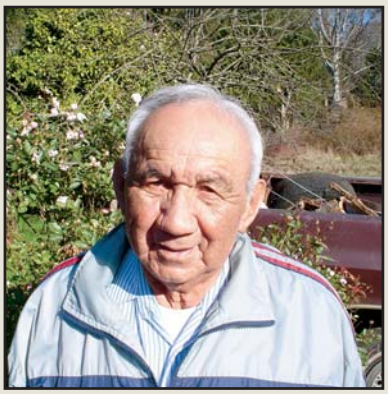
That isn't the only problem. Over time, fill material has been pushed from a sand spit into the inner lagoon, limiting fish habitat. The tribal organization will remove that fill and construct a new bridge, creating two to three additional acres where fish can rest and feed before heading out to sea.

"We'll be working closely with homeowners throughout the process," said Boyer. "Our goal is to leave the area a better place to live for both fish and for human residents."

Funding for the project has been approved by the state Salmon Recovery Funding Board. Work will likely begin next year.

– J. Shaw

Generations



Port Gamble S'Klallam tribal members Claude (Skip) George, left, and his uncle, Benny Anderson, carry a bucket of clams and a couple of salmon as they walk down the beach at Point Julia around 1940. In the background is Skip's dog Skipper. Anderson has since passed away. Today, George, above, enjoys retirement at his home on the tribe's reservation near Kingston. *Photo: Courtesy Port Gamble S'Klallam Tribal Archives.*

Lummi Nation Study Helps Wild Chinook

Burt LaClair digs holes for the Lummi Nation's estuary replanting effort. The tribe is focused on learning more about, and working to restore, critical estuary habitat for salmon. *Photo: J. Shaw*

To help bring back healthy runs of adult wild salmon, the Lummi Nation is completing a study of the area's juvenile fish use to transition from fresh to salt water – estuaries and nearshore habitat in the Nooksack River basin.

"By studying how habitat used to function when we had prolific salmon runs, and comparing that to the way things work today, we hope to learn how to bring those natural habitat processes back," said Merle Jefferson, director of Lummi Natural Resources. "This information will help us select the best restoration projects for the job."

The historical analysis of land-use patterns dating back to the 19th century will build scientists' understanding of how the processes of habitat formation have changed over the years. That, in turn, will help tribal resource managers plan restoration efforts that will maximize the benefits to fish, including endangered species such as the Nooksack River spring chinook, listed as "threatened" under the federal Endangered Species Act.

'This information will help us select the best restoration projects for the job.'

– Merle Jefferson
Director
Lummi Natural Resources

"In every area, we looked at how that habitat was important for feeding and rearing juvenile chinook historically," said Melissa Brown, a habitat biologist with the Lummi Nation. "Then, we examined the changes that have occurred to habitat-forming processes."

The tribal research initiative covered a vast swath of land and water, ranging from Point Whitehorn in the north, Portage Island in the west and Fairhaven's Post Point in the south. That area also includes Cherry Point, home to a historically abundant – but now troubled – stock of herring, fish that are a prominent indicator of ecosystem health.

"This study focuses on juvenile chinook," said Brown, "but the information will have application for other fish as well, including all salmon species and endangered bull trout."

Over decades, conversion of forested wetlands and estuarine scrub shrub habitat to agricultural land ranks as the most significant overall change, Brown said. Overall, about 80 percent of historic estuary habitat in the Lummi and Nooksack deltas has been lost.

Pictures, like a sequence of aerial photographs taken between the 1930s and 2004, helped tribal staff get a clearer view of changes over time in the Nooksack basin. Nautical charts obtained from the National Oceanic and Atmospheric Administration also offered valuable insights about early conditions in the watershed.

Besides large-scale photographic evidence, tribal scientists examined plants, animals and invertebrate species from around the region.

The Lummi findings will be reported April 1.

The project was funded by a 2002 grant from the state Salmon Recovery Funding Board. Additional funding was provided by the federal Bureau of Indian Affairs.

– J. Shaw

Clam Quest

Barry Allen, Quinault Indian Nation tribal member, enjoys the first opening of Kalaloch beach to razor clam harvest in more than a year. Levels of domoic acid, a naturally occurring toxin that can cause illness or death, have been too high until recently to allow harvest. Coastal tribes and the Washington Department of Fish and Wildlife co-manage the razor clam resource. *Photo: D. Preston*

Chum Hatchery Program Streamlined

The Suquamish Tribe is streamlining its salmon enhancement program by shifting the majority of its chum salmon production from Cowling Creek Hatchery to Grovers Creek Hatchery.

Moving a large portion of the chum salmon production to the much-larger Grovers Creek Hatchery will cut costs and allow for a more centralized salmon enhancement operation. While salmon production at Cowling Creek will be reduced, the facility will continue to be maintained by the tribe and a smaller number of chum salmon will still be reared and released at the hatchery annually.

"Making this modification to our chum salmon hatchery program will help us focus on correcting salmon habitat problems that plague this area," said Rob Purser, fisheries director for the Suquamish Tribe. "This much-needed work on degraded habitat is necessary if Puget Sound salmon populations are going to recover."

Bill Alexander, hatchery technician for the Suquamish Tribe, feeds a pond of hatchery chum salmon at the Grovers Creek Hatchery. *Photo: D. Friedel*

In the past, the tribe has modified its salmon enhancement program. For example, in the 1990s the tribe discontinued its Agate Pass coho program.

'With this modification, we will cut costs and help the tribe focus on salmon habitat, while still producing hatchery chum and chinook salmon for Indian and non-Indian fishermen.'

– Jay Zischke
Finfish Program Manager
Suquamish Tribe

"This most recent change will help us consolidate our salmon enhancement operation, and allow us to focus some of our efforts elsewhere," said Jay Zischke, finfish program manager for the tribe. "With this modification, we will cut costs and help the tribe focus on salmon habitat, while still producing hatchery chum and chinook salmon for Indian and non-Indian fishermen."

Chum returning to Cowling Creek will continue to be used for broodstock – male and female salmon that provide the eggs and milt for hatchery fish – and for educational purposes. If needed, the tribe can once again increase chum salmon production at Cowling Creek in the future. Over the past few years, however, chum salmon have returned in large numbers to Kitsap County streams. Hatchery salmon production and good ocean conditions have contributed to these abundant returns.

"We have had large chum salmon returns to the area over the past few years, but that doesn't mean salmon have recovered in Puget Sound," said Paul Dorn, salmon recovery coordinator for the Suquamish Tribe. "The loss of spawning and rearing habitat is still a serious problem. This problem is being addressed by the tribe, Kitsap County and several cities by accessing statewide salmon recovery funding; correcting fish passage barriers; improving critical areas ordinances and shoreline master plans; using open space and conservation easements; involving numerous business and community organizations and individual landowners who have stepped up and helped make a difference."

For the past four years, the tribe has been studying Kitsap County's nearshore areas to better understand how hatchery salmon interact with wild salmon. The nearshore environment is important habitat for both hatchery and wild salmon.

The Suquamish Tribe's hatchery program will continue to focus on chinook production at the Grovers Creek Hatchery, with the major off-hatchery release site being Gorst Creek. The City of Bremerton, Washington Department of Fish and Wildlife, and the Poggie Club are all partners with the tribe in this long-running cooperative salmon program.

Opened in 1977, the Cowling Creek Hatchery was the Suquamish Tribe's first salmon hatchery. Since then over 48 million chum salmon have been produced at the hatchery and released into East Kitsap streams.

The tribe has engaged hundreds of Kitsap County citizens and local students in these salmon enhancement efforts. Organizations like the Silverdale Kiwanis Club, Central Kitsap School District, Chums of Barker Creek, Poggie Club, Stillwaters Environmental Education Center, Trout Unlimited, Mid Puget Sound Fisheries Enhancement Group, Kitsap Conservation District, Kitsap PUD, Kitsap Stream Team, Kitsap Trees, Clear Creek Task Force and Friends of Miller Bay have been involved in salmon enhancement projects and helped improve local streams. – *D. Friedel*

Marbled Chinook

Makah Tribe, Non-Indian Trollers Join Up To Market Regional Delicacy

Makah tribal fishermen and the non-Indian Washington Trollers Association (WTA) are working together to promote the unique taste and high levels of heart-healthy omega-3 fatty acids found in marbled chinook.

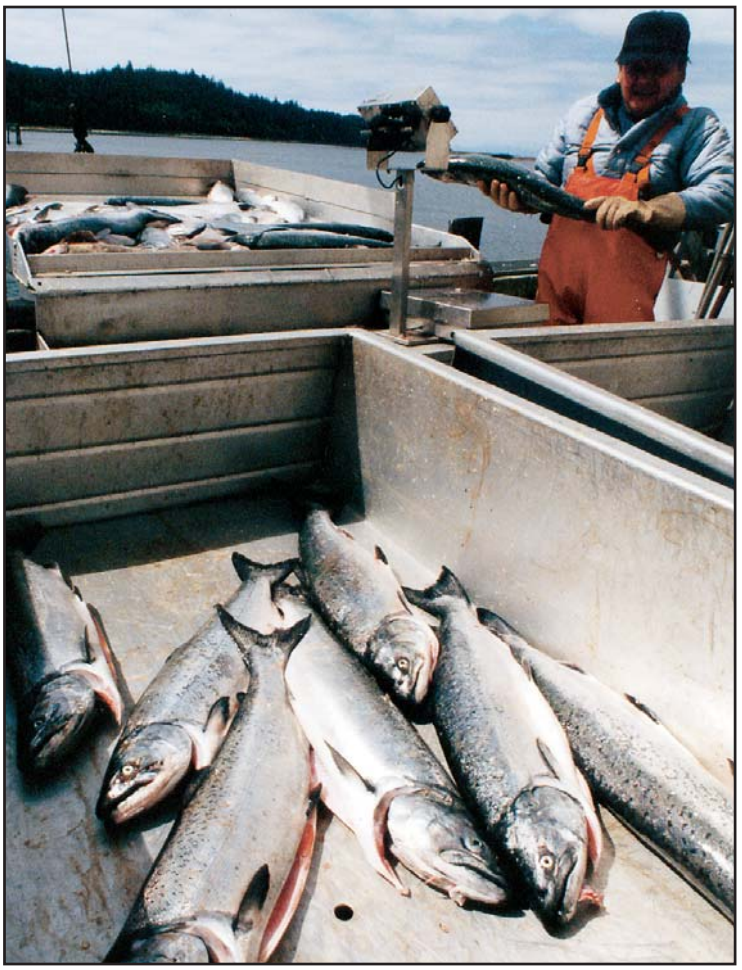
The unusual fish gets its name from the mixing of color throughout the flesh. The color is thought to be a genetic characteristic of a few stocks from several rivers in British Columbia

"This is a fish that is mostly caught in the waters off Neah Bay and to the north," said David Sones, Makah council vice-president and a tribal fisherman. "It has a unique flavor and it's a product that this region can call its own."

Marbled chinook has a history of being discarded because consumers were taught to reject its pale orange color in favor of pinkish tones of other types of salmon. The tribe and WTA began a campaign two years ago to showcase the great taste and limited regional availability. Together, they bring a critical element to the marketing effort – consistent supply. "Because our fishing seasons overlap very little, together we're able to provide a consistent supply to consumers," said Sones.

The tribe and WTA will market the marbled chinook as a regional delicacy with promotions at restaurants and their food buyers. "Our goal is to have this fish appreciated for what it is – a rare delicacy that people request, which in turn enhances the value of the fish," said Sones.

Tests performed at the Oregon State University Seafood Laboratory in Astoria showed marbled chinook have up to twice the levels of omega-3 fatty acids than farmed salmon. Omega-3 fatty acids have been found to have important heart benefits such as reducing cholesterol and lowering heart attack risk.



A Makah fisherman unloads a catch of chinook at Neah Bay. *Photo: D. Preston*

"We're all fishermen on the docks," said Geoff LeBon, a non-tribal troller and past president of the WTA. "Tribal and non-tribal fishermen are looking for a solution to a problem we both face – a scandalously low price for an excellent fish." – *D. Preston*

Study: Tribal Members Not Overexposed To Toxins

While toxic chemicals from a nearby dump have contaminated 300 acres of tribal land, Port Gamble S'Klallam tribal members have not been overexposed to hazardous pollutants, according to a federal study. Tribal members, however, are unable to garden, gather native plants or harvest fish and shellfish in waters within the contaminated area for at least the next 50 to 100 years.

The U.S. Environmental Protection Agency's (EPA) three-year study has concluded that heavy metals, such as arsenic and mercury, leaching from a toxic dump next to the tribe's reservation are within acceptable human levels for tribal members. The EPA will continue to monitor the contaminated area.

"What this means is right now there is no indication of abnormally high amounts of toxins in the diet of tribal members," said Dave Fuller, water resource manager for the Port Gamble S'Klallam Tribe. "The landfill, however, still poses a real threat to tribal and surrounding communities, and active measures still need to be taken to clean up the site."

Concerns about the toxins at the Hansville landfill prompted the tribe to contact the EPA in 2001. Several cases of cancer and other diseases raised fears that the toxins leaking from the landfill caused these health problems. During the study, tribal members provided the EPA blood, urine and hair samples for tests. The tribe's water supply also was analyzed.

"We know we have this landfill next door and we know toxic material is leaking from it," Fuller said. "We wanted to see just how much tribal members are being exposed to these toxins, while at the same time try to figure out how we can go about correcting this problem."

The Hansville landfill operated for 27 years before it was closed in 1989. Six years later it was placed on the Kitsap County Hazardous Sites list and received the highest hazard rating possible.

The tribe, along with the former landfill operators, Kitsap County and the State of Washington, is studying the landfill and working toward a possible cleanup plan for the contaminated site. – *D. Friedel*

Tribes Release State Of Watersheds Report

The treaty Indian tribes in western Washington, in cooperation with the State of Washington, have produced the most comprehensive report to date on the status of salmon habitat in the region. "State of Our Watersheds" compiles decades of data collected by tribes, and state and federal agencies, painting a picture of watersheds across western Washington.

"Tribes have always lived along the rivers," said Billy Frank Jr., chairman of the Northwest Indian Fisheries Commission (NWIFC). "We have always had a watershed perspective, and this report tells the story of salmon habitat from our perspective."

The State of Our Watersheds report is a product of the Salmon and Steelhead Habitat Inventory and Assessment Program (SSHIAP), a cooperative effort of the treaty Indian tribes in western Washington and the Washington Department of Fish and Wildlife. SSHIAP collects information on salmon habitat conditions throughout the state and manages it in a single geographic information system database.

The report by the salmon co-managers brings together data from across the spectrum – including water quality, available habitat, and salmon run sizes – that have not been displayed together before in one document. "This report begins to connect the dots between the health of salmon habitat and the health of the salmon," said Frank, adding that the work would not have been possible without the assistance of U.S. Rep. Norm Dicks, who was instrumental in securing funding for the project.

To track changes in salmon habitat, such as completed restoration projects, the Watersheds Report will be updated every year. For example, of the 17,731 miles of streams available to salmon, man-made barriers block 2,600 miles. "This is a good example of how and where salmon recovery efforts are making a difference and where we need to target more work," said Bob Kelly, natural resources director for the Nooksack Tribe. "The report starts out as a snapshot, but in a few years we'll be able to show a movie. Hopefully that 2,600 miles of blocked habitat will be significantly reduced in the coming year."

"The tribes are leaders in managing salmon and recovering weak wild stocks, and this report shows that," said Frank. "Tribes are the original salmon managers; we've been doing this for thousands of years."

While the report took years to compile and write, it represents decades worth of data collected by tribal staff across western Washington. "The tribes' homes are the watersheds," said Frank. "Tribal staff have been out in the watershed for years collecting the data for the report. Since tribes live in the watersheds, we know the watersheds best."

The Puyallup River watershed was one of dozens examined in a recent tribal report. *Photo: Eric Marks, Puyallup Tribe*

In addition to tribally collected data, the report also collected information from several state and federal agencies. "This information has never been brought together in one place," said Mike Grayum, executive director of the NWIFC, which provides natural resource management support services to 20 treaty Indian tribes in western Washington. "Bringing together all of that data from different places gives us a much better idea of how salmon are faring in changing habitat conditions. It also helps the state and tribal co-managers measure success and target future efforts."

"This report will give us a road map to recovering salmon across the region," said Frank. "With this information, we can make better decisions about were to focus our efforts to bring salmon back to harvestable levels."

To request a CD copy of the Watersheds Report, visit www.nwifc.org/watershed. – *E. O'Connell*

Northwest Indian Fisheries Commission
6730 Martin Way East
Olympia, WA 98506
(360) 438-1180